North Mountain Cougar Habitat Suitability Analysis User Manual

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PROG 5000 Assignment 1

The purpose of this user manual is to provide the end user of the program a step-by-step guide for loading and executing the North Mountain Cougar Habitat Suitability Analysis program in QGIS.

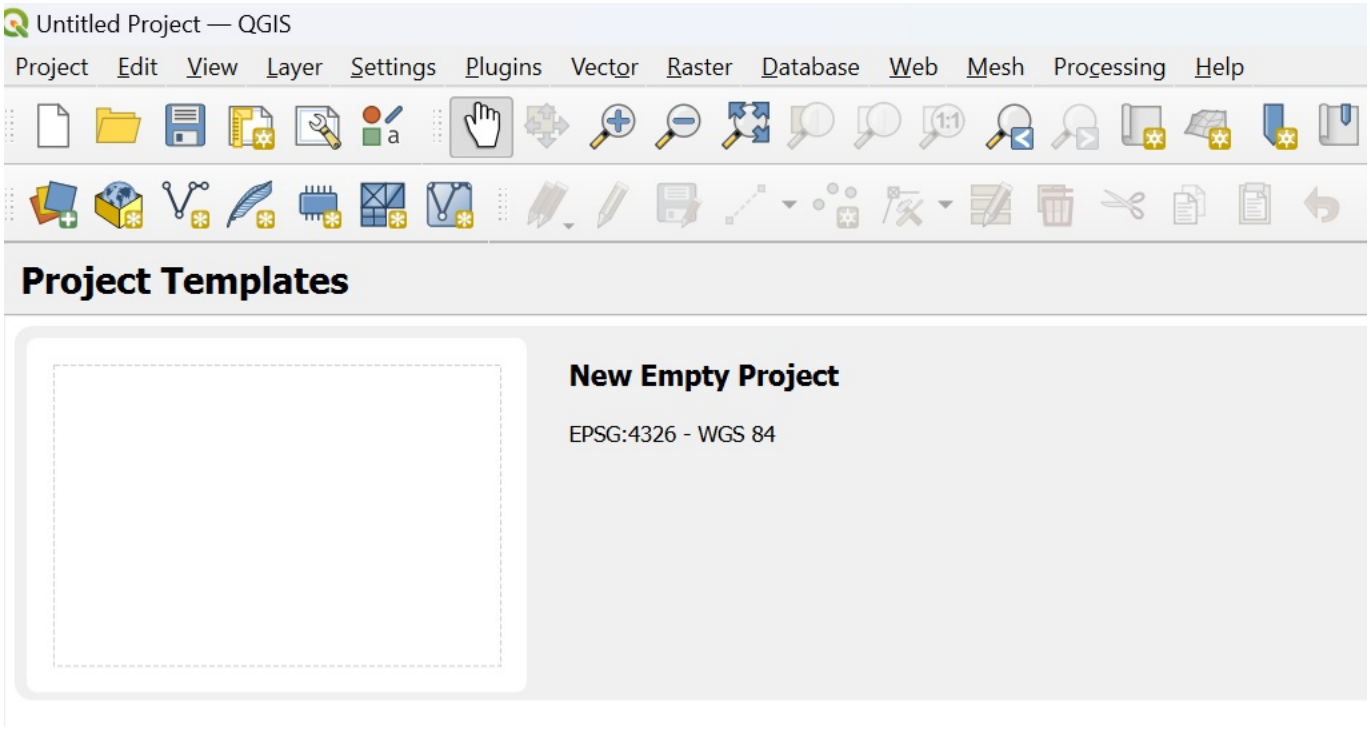
This program will use a python script that filters out forest polygons based on one leading species of the forest stand from a generated list of species type codes from the dataset layer being used. The execution of the program calculates the average tree diameter, forest stand average tree height and cover type and assigns it a rating value based on the criteria below. In the end the suitability categories will be summarized in a report and the user will have the option to rerun the program for another leading species if needed.

AVERAGE TREE DIAMETER (AVDI)	
Category	**Rating Value**
Less than 20 centimetres	0.75 points
Between 20 and 30 centimetres	1.75 points
Greater than 30 centimetres	2.5 points
FOREST STAND AVERAGE TREE HEIGHT (HEIGHT)	
Category	**Rating Value**
Less than 10 metres	1.25 points
Between 10 metres and 20 metres	2.5 points
Greater 20 metres	3.75 points
COVER TYPE (COVER_TYPE)	
Category	**Rating Value**
Softwood	1 point
Mixedwood	2 points
Hardwood	3.75 points

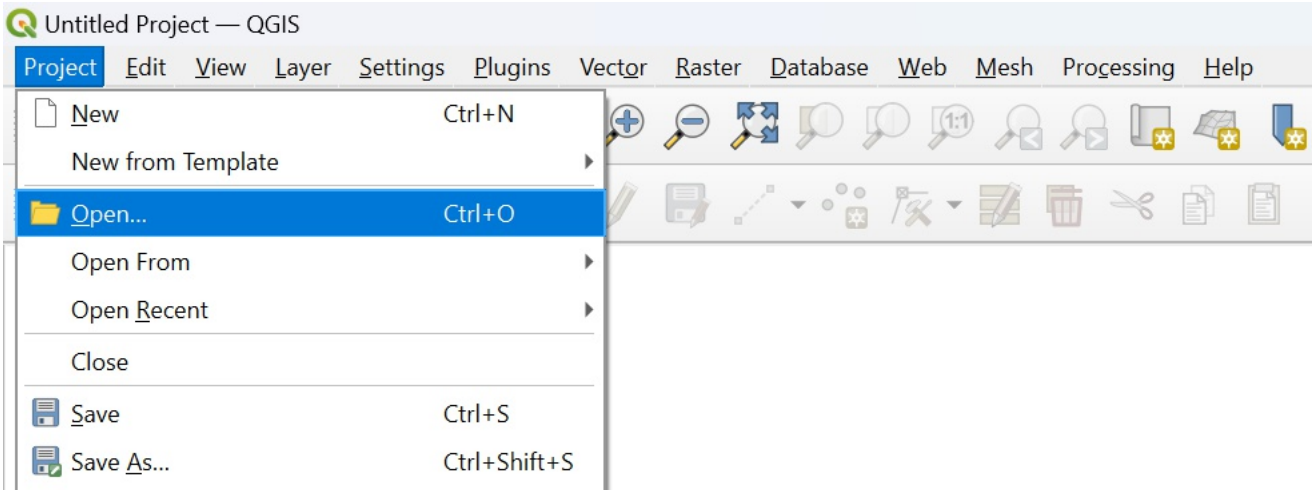
Suitability Rating	
Category	**Rating Value**
Low Suitability	< 5
Medium Suitability	Between 5 and 8
High Suitability	>8

1. Loading up the Program:

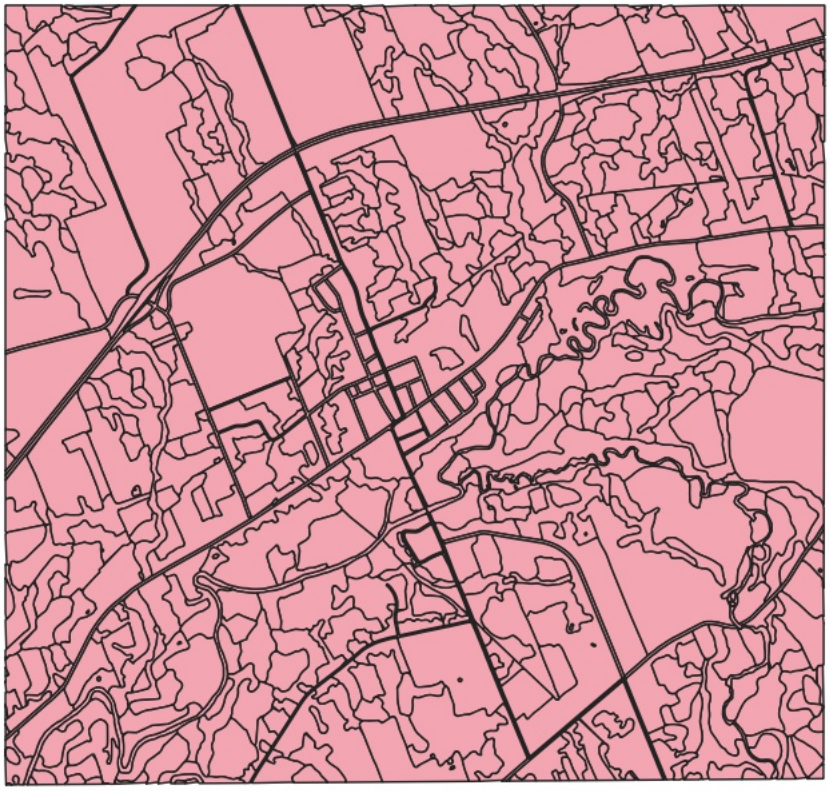
To begin you will need to create a new empty project in QGIS. Open QGIS and click on New Empty Project under Project Templates:



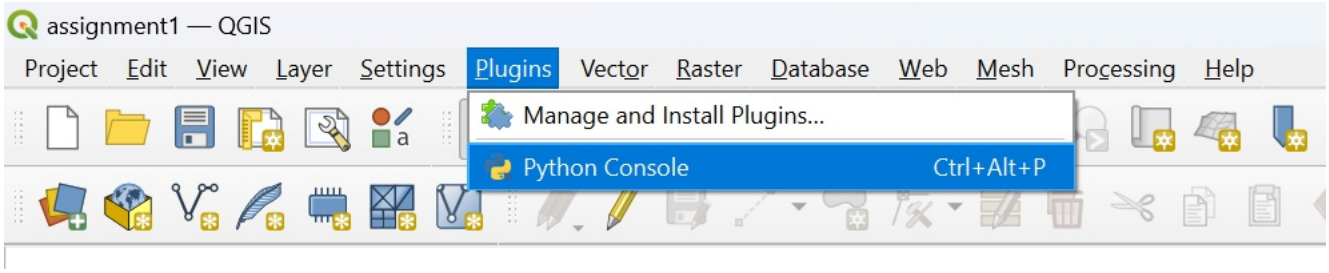
On the QGIS toolbar navigate to Project > Open:



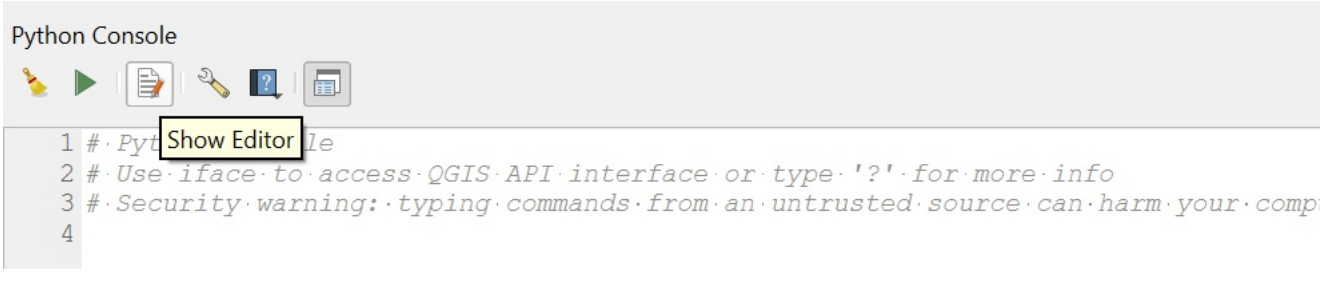
The Open Project window opens. Navigate to the location of the project, select it and click Open. You will be greeted with the needed forestry shapefile already loaded into the program



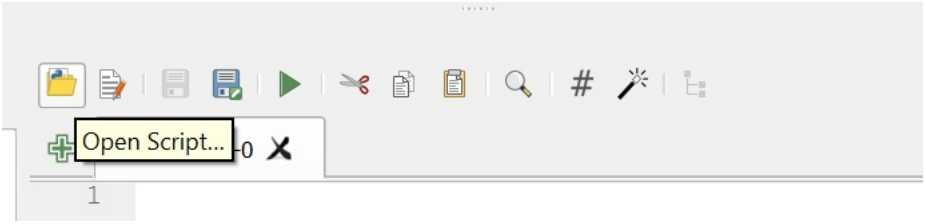
Click on Plugins on the Toolbar and Select Python Console:



The Python console will open on the bottom of the screen. Click show editor to open the editor:

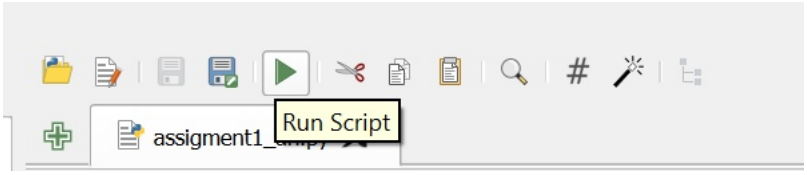


Click Open Script and the Open File window opens. Navigate to the location of the .py script file, select it and click Open. The North Mountain Cougar Habitat Suitability Analysis script will load and you are now ready to run the program.



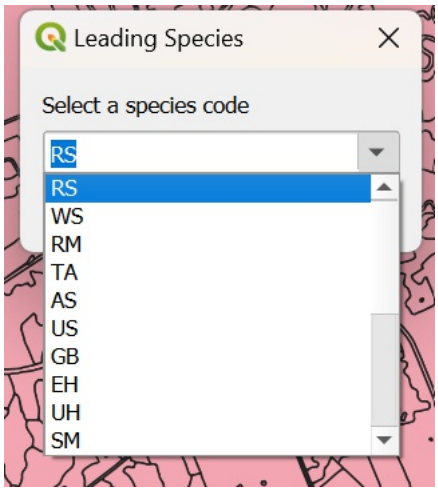
2. Running the Program.

Click "Run Script" on the editor window to run the program.



The program willl run and a drop down list with all of the codes for the leading species in each forest polygon in the layer will load. The user will be asked to select an option in order for the program to summarize low, medium, and high probabilities of North Mountain Cougar Habitat areas within a specific leading species for each forest stand. The criteria is based on the new rating specified by the Nova Scotia Department of Natural Resources.

In addition the "Cancel" button can be pressed order to terminate the program without choosing a species.



After execution the forest polygons of the selected leading species will be highlighted in the layer window and the user will be presented with a final report in the shell window that displays the total number of forest polygons for the selected leading species, the number of polygons for each suitability category along with the minimum, maxinum, total and average area of the stands for each suitability category.

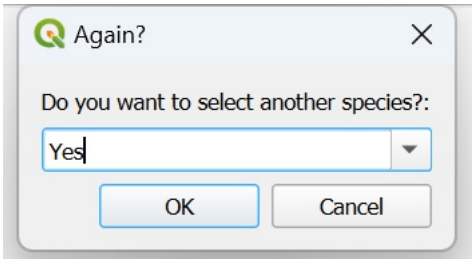
```
============================================================
        North Mountain Cougar Habitat Suitability Analysis
            51  of WS Polygons in Study Area.
============================================================
Low Suitability:
            - Number of polygons  :         28
            - Minimum polygon area:       9189.481
            - Maximum polygon area:      84652.845
            - Total area          :    1103504.723
            - Average polygon area:      39410.883

Medium Suitability:
            - Number of polygons  :         23
            - Minimum polygon area:       9764.321
            - Maximum polygon area:     192343.992
            - Total area          :    1028603.596
            - Average polygon area:      44721.895

High Suitability:
            - Number of polygons  :          0
            - Minimum polygon area:          0.000
            - Maximum polygon area:          0.000
            - Total area          :          0.000
            - Average polygon area:          0.000
============================================================
```

Lastly the user will be asked if they want to rerun the program again by choosing another leading species. Pressing "Yes" will return the user to the start of the program and ask them to select another leading species.

Otherwise pressing "Cancel" or choosing "No" will end the program.



However there's some limitations for the script of the program. The user is not able to change the dataset at will as the selected layer needs to be open already during a project in order for the program to run.